

translation

CLAIMS

1. (amended) A stainless steel member passivation treatment method for forming a passive film on a surface of the stainless steel member, said method comprising the steps of:

immersing the stainless steel member in an alkaline solution of pH 9 to 12 at 40 to 60°C; and

air bubbling the alkaline solution, added with a pH buffer, or provided with a pH buffer action,

whereby the amount of oxygen dissolved in the alkaline solution is increased to promote the formation of hydroxides constituting the passive film, and by carbon dioxides dissolving in the alkaline solution falling of its pH is suppressed.

2. (canceled)

3. A stainless steel member passivation treatment method according to claim 1, characterized in that a stainless steel member having finished the immersion step is dried by being held at 100 to 200°C.

4. A stainless steel member passivation treatment method according to claim 3, characterized in that the stainless steel member is a separator for use in a fuel cell.

5. A method for manufacturing a stainless steel separator for use in a fuel cell, characterized in that it comprises:

a step of applying a lubricant to a stainless steel thin sheet and press-forming gas flow passages and cooling water flow passages in it;

a step of removing lubricant adhered to the stainless steel thin sheet by spraying the press-formed stainless steel thin sheet with an alkaline solution for cleaning;

a step of removing alkaline solution for cleaning adhered to the stainless steel thin sheet by spraying washing water onto the stainless steel thin sheet;

a step of removing washing water remaining on the stainless steel thin sheet by spraying ion-exchange water onto the stainless steel thin sheet;

a step of spraying an alkaline solution for passivation treatment onto the stainless steel thin sheet to passivation-treat the stainless steel thin sheet;

a step of removing alkaline solution for passivation treatment adhered to the stainless steel thin sheet by spraying ion-exchange water onto the stainless steel thin sheet; and

a step of thermally drying the stainless steel thin sheet.

6. A method for manufacturing a stainless steel separator for use in a fuel cell according to claim 5, characterized in that

the alkaline solution for passivation treatment is a solution of pH 9 to 12 brought to 40 to 60°C.

7. A method for manufacturing a stainless steel separator for use in a fuel cell according to claim 6, characterized in that the alkaline solution for passivation treatment is a solution with a pH buffer added.

8. A method for manufacturing a stainless steel separator for use in a fuel cell according to claim 5, characterized in that the thermal drying process is carried out at 100 to 200°C.

9. A method for manufacturing a stainless steel separator for use in a fuel cell according to claim 5, characterized in that the alkaline solution for cleaning is a solution made by adding a surfactant to a basic salt.